

I claim:

1. An apparatus for establishing a communication link, comprising:

a negotiation data transmitting section, associated with a plurality of initiating communication devices, that transmits carriers to a responding communication device;

5 a negotiation data receiving section, associated with the plurality of initiating communication devices, that receives carriers from said responding communication device, in response to said transmitted carriers, and

a selecting device that selects an appropriate communication device from the plurality of communication devices, in accordance with said responding communication device, to establish a communication channel.

Sub A
2. The apparatus of claim 1, wherein said transmitted carriers contain data related to a useable carrier allocation.

3. The apparatus of claim 1, wherein said transmitted carriers and said received carriers are divided into a plurality of bands.

15 *Sub A*
The apparatus of claim 1, wherein said negotiation data transmitting section transmits said carriers in accordance with neighboring receiving systems.

5. The apparatus of claim 4, wherein transmission characteristics of said transmitted carriers are re-configurable during a transmission operation in order to minimize interference with the neighboring receiving stations.

6. The apparatus of claim 3, comprising a system that selects a plurality of bands to minimize interference with a voice band device.

7. A method for establishing a communication link, comprising:
transmitting predetermined carriers to a responding communication device;
receiving predetermined carriers from the responding communication device, in
response to the predetermined transmitted carriers, and
selecting an appropriate communication device from a plurality of communication
devices, in accordance with the received predetermined carriers, to establish a
communication channel.

8. The method of claim 7, further comprising dividing the transmitted carriers and
the received carriers into a plurality of bands.

Sup3 9. The method of claim 7, wherein the transmitting of predetermined carriers
comprises transmitting the carriers in accordance with neighboring receiving systems.

10. The method of claim 9, wherein the transmitting of transmission
characteristics of the carriers comprises re-configuring the carriers during a transmission
operation in order to minimize interference with the neighboring receiving stations.

11. A communication device that at least one of transmits and receives a
communication signal, comprising:

a data exchanging device that exchanges data, between an initiating

communicating device and a responding communication device, over a communication channel; and

an implicit channel probe device that analyzes said exchanged data to assess characteristics of said communication channel.

5 12. The communication device of claim 11, wherein said data exchanging device comprises a transmitter that transmits results of said analyzed exchanged data as part of said exchanged data.

10 13. The communication device of claim 11, wherein said implicit channel probe device comprises an analyzer that monitors said communication channel by performing a spectral analysis of said exchanged data.

14. The communication device of claim 13, wherein said exchange of data and said analysis of exchanged data occur at substantially the same time.

15 15. The communications device of claim 13, wherein said exchange of data and said analysis of exchanged data occur sequentially.

16. The communication device of claim 13, wherein said exchanged data comprises a plurality of initializing carriers, said plurality of initializing carriers being exchanged between said initiating communicating device and said responding communication device.

17. A method for at least one of transmitting and receiving a communication

signal, comprising:

exchanging data between an initiating communicating device and a responding communication device, over a communication channel; and
5 performing an implicit channel probe analysis on the exchanged data to assess characteristics of the communication channel.

18. The method of claim 17, wherein the exchanging of data comprises transmitting results of the analyzed exchanged data as part of the exchanged data.

19. The method of claim 17, wherein said performing of an implicit channel probe analysis comprises performing a spectral analysis of the exchanged data.

20. The method of claim 17, further comprising exchanging the data and performing the analysis at substantially the same time.

21. The method of claim 17, wherein the exchanging of data and the performing of the analysis of data occur sequentially.

22. The method of claim 17, wherein the exchanging of data comprises 15 exchanging a plurality of initializing carriers between the initiating communicating device and the responding communication device.

23. A communication device, comprising:

a communication device that initially transmits data with a multiplicity of carriers;
and

a carrier determining device that reduces said multiplicity of carriers transmitted by said communication device to a predetermined number of carriers, in accordance with a predetermined carrier reduction system.

24. The communication device of claim 23, wherein said predetermined carrier reduction system comprises a pair phase reversal system.
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25. The communication device of claim 23, wherein said predetermined carrier reduction system comprises a modulate carrier system.

26. The communication device of claim 23, wherein said predetermined carrier reduction system comprises a carrier use and request transmit system.

27. The communication device of claim 23, wherein said carrier determining device comprises a reduction device that reduces said multiplicity of carriers to said predetermined number of carriers in order to limit a transmit power during an initialization procedure.

28. The communication device of claim 23, wherein said carrier determining device comprises a determining device that determines the most usable communications channels.
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29. The communication device of claim 23, wherein said initial transmission of said multiplicity of carriers comprises a system that increases a likelihood of establishing a communication channel.

30. The communication device of claim 29, wherein said carrier determining device reduces said multiplicity of carriers to said predetermined number of carriers to reduce a power transmission requirement.

31. A method for establishing a communication link, comprising:

5 exchanging unmodulated carriers between an initiating communication device and a responding communication device, to negotiate a high speed communication link; and executing a fallback procedure to establish a predetermined communication link if one of the initiating communication device and the responding device is unable to process said unmodulated carriers for negotiating the high speed communication link.

32. The method of claim 31, wherein executing a fallback procedure comprises executing a predetermined escape procedure to establish a communication link with a legacy high speed communication device.

15 33. The method of claim 31, wherein executing a fallback procedure comprises executing a predetermined explicit connection procedure to establish a communication link with a legacy high speed communication device.

34. The method of claim 31, wherein executing a fallback procedure comprises executing a voiceband modulation procedure to establish a voiceband communication link.

35. A method for establishing a communication link between a first device and a

second device, comprising:

transmitting a first capabilities list to one of the first device and the second device;

receiving a second capabilities list transmitted by a remaining one of the first device and the second device, in response to the first capabilities list;

5 selecting an appropriate communication mode from a plurality of communication modes, in accordance with the second capabilities list, to establish the communication channel; and

executing a simplified initialization procedure to re-establish the communication link in the event that one of the first device and the second device has entered a non-data exchange state and data is to be exchanged between the first device and second device.

36. A method for establishing a communication link between a first device and a second device, comprising:

establishing common communication capabilities between the first device and the second device;

15 selecting an appropriate communication mode from a plurality of communication modes, in accordance with the established common communication capabilities; and

executing a simplified initialization procedure to re-establish the communication link in the event that one of the first device and the second device has entered a non-data exchange state and data is to be exchanged between the first device and second device.

37. A method for establishing a communication link, comprising:

executing a negotiation protocol in order to establish a communication link

between a first communication device and a second communication device;

maintaining a carrier of the negotiation protocol upon establishing the

5 communication link, to serve as an embedded operations channel.

38. The method of claim 37, wherein the embedded operations channel transmits

managerial data.

39. A communication device, comprising:

means for performing a handshake communication procedure; and

means for configuring handshake communication parameters from a terminal using
a Simple Network Management Protocol.

40. The communication device of claim 39, further comprising means for

monitoring said handshake communication parameters from said terminal.

41. A communication method, comprising:

15 using an Administration, Operations, and Management (AOM) Simple Network
Management Protocol (SNMP) to configure and monitor a handshake procedure for
establishing a high speed communication link